

The epidemiology of cryptosporidium at the wildlife-livestock and human interface on the western boundary of the Kruger National Park

Abu Samra N (1), Thompson P (2), Woods P (3), Samie A (4), Jori F (5).

(1) Faculty of Veterinary Science, University of Pretoria, South Africa

(2) Faculty of Veterinary Science, University of Pretoria, South Africa

(3) Faculty of Veterinary Science, University of Pretoria, South Africa

(4) Department of Microbiology, University of Venda for Science and Technology, South Africa

(5) Integrated animal Risk Management Unit, Department ES, CIRAD, France

Cryptosporidium has emerged as one of the most important zoonotic coccidian parasites affecting a wide range of wild and domestic animals and men. It causes severe life-threatening diarrhoea in neonates and immunocompromised individuals, especially in HIV/AIDS positive patients. Among rural communities surrounding the Kruger National Park (KNP) the prevalence of HIV/AIDS is high and contact between wildlife and livestock frequently occurs. Thus the risk of transmission of *Cryptosporidium* passing from the wildlife population in the KNP to the bordering communities and their livestock needs to be assessed. Currently, no data are available on the prevalence of *Cryptosporidium* in wildlife and cattle in South Africa. To identify the prevalence of *Cryptosporidium* in the wildlife and the livestock population, a total of 430 faecal samples were collected from wild animals (Buffalo, Impala and Elephant) in three different areas of the KNP (2 of them in proximity of the Western boundary and 1 within the KNP territory). In addition a total of 600 samples were collected from cattle in 10 different diptanks, located next to the KNP in the Bushbuckridge district (Mpumalanga). Simultaneously, a questionnaire to assess contacts between wildlife and cattle was implemented among cattle owners in the same locations. The fecal samples were then microscopically analysed using Ziehl Neelsen staining (ZN) and an Immunofluorescence (IF) kit test. Preliminary results of the ZN staining in wildlife samples, showed that the parasite was present in 7.7% of the samples. The highest prevalence was found in Elephants (18.8%), followed by Buffalo (3.3%) and Impala (2.2%). The results of the questionnaire highlighted the regular presence of wild animals on the communal farmland outside the KNP; Buffalo is frequently seen, followed by Elephants and Impala.

At this stage of the study, the presence of *Cryptosporidium* in the wildlife population has been detected and therefore we can conclude that a potential transmission of this parasite to the bordering communities and their livestock is plausible.

The Mpumalanga province has the highest prevalence of HIV in South Africa (23%) and the communities of our study area are regularly exposed to wild animals; therefore it is essential to address the importance of *Cryptosporidium* infection in this wildlife-livestock and human interface area.